To: Rebecca Sawyer[rsawyer@excelsiormining.com]
Cc: ajones@clearcreekassociates.com[ajones@clearcreekassociates.com]; Roland Goodgame[rgoodgame@excelsiormining.com]; Stephen Twyerould[stwyerould@excelsiormining.com]; Albright, David[Albright.David@epa.gov]
From: Rumrill, Nancy
Sent: Thur 3/16/2017 6:48:08 PM
Subject: RE: Excelsior Response to EPA February 27, 2017 Comments Gunnison Copper UIC

Hi Rebecca,

Thanks for sending the draft response. Your message asked that we review the draft response and confirm whether or not it is acceptable. Part of the response is acceptable. However, in some instances the response does not have a sufficient level of detail to determine its acceptability. For example, the response states "IMWS will be fitted with a transducer that will measure both water levels and specific conductivity at least once daily." We need clarification of this statement, since injection intervals may be as long as 1000 feet, representative specific conductivity measurements are important. Conductivity measurements should be at intervals within the injection interval, not just a single reading at one depth if that is what is being proposed.

Regarding the initial review of performance, the draft response states that Excelsior understands EPA will require review of the early performance of the mining operation and commits to providing a detailed report describing the first year's performance and evaluation of the groundwater computer model. We agree that a detailed report would need to review performance and evaluate the model and this would be subject to EPA review and approval. During EPA's review of the detailed report, continuation or expanding of operations after the first year of performance and evaluation of the model would also be subject to EPA review, and the permit could include the option for a pause before continuing or expanding operations to allow time for EPA to review the report and consider any substantive changes to the ISR and monitoring operations. Additional reviews should be periodic throughout the life of the project, perhaps annually and/or whenever expansion to another mine block is planned and when rinsing a mine block is ending.

Given your statement that "this issue has implications related to DEQ's draft APP," it may be more efficient to discuss this matter in that context and address the specific aspects that most impact the draft APP. Let us know if you would like to discuss the information.

Thanks, Nancy

United States Environmental Protection Agency

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From: Rebecca Sawyer [mailto:rsawyer@excelsiormining.com]
Sent: Thursday, March 09, 2017 2:15 PM
To: Albright, David <Albright.David@epa.gov>; Rumrill, Nancy <Rumrill.Nancy@epa.gov>
Cc: ajones@clearcreekassociates.com; Roland Goodgame <rgoodgame@excelsiormining.com>; Stephen Twyerould <stwyerould@excelsiormining.com>
Subject: Excelsior Response to EPA February 27, 2017 Comments Gunnison Copper UIC

David and Nancy;

In our joint meeting on February 22, 2017, we discussed EPA's draft comment 1. At that time we understood that EPA was in general agreement with the following response. This issue has implications related to DEQ's draft APP so we would like confirmation of your concurrence, while we are finalizing our comment responses. Please review the following response and confirm that this is acceptable to EPA.

Thank you for your consideration of this request.

Becky

1. Provide a proposal to demonstrate the effectiveness of wellfield operations and conduct model validation and, if necessary, recalibration based on early Stage 1 operations performance, prior to full implementation of commercial-scale ISR operations in Stage 1 and later stages. An EPA review of this early performance and demonstration of effectiveness will be required prior to EPA approval and initiation of full-scale commercial operations. The timeline for this initial demonstration phase should not exceed two years. The proposed intermediate monitoring wells and other well locations for this initial phase should be specified and shown on a map in the updated application. Subsequent monitoring well locations, proposed as ISR operations expand, will be subject to prior EPA approval.

Excelsior should amend and update the application accordingly.

Excelsior Response:

Excelsior plans to operate the wellfield as a commercial, full scale operation in the first year. Excelsior recognizes that the data collected over the first year of operations are important in evaluating the performance of the groundwater computer model that has been used to justify the Hydraulic Control containment scheme. Much will be learned during the first year of operations; however, every subsequent mining block will also have unique aspects and challenges. It is therefore important to recognize that the first year is not necessarily representative of the entire wellfield operations. Full scale operations over time will provide a complete understanding of in situ conditions and what is necessary for control of mining solutions. Excelsior understands that EPA will require review of the early performance of the mining operation and will commit to providing a detailed report describing the first year's performance and evaluation of the groundwater computer model.

During the first year of in situ mining, considerable data and operational experience will be gathered and compiled. All wells designated as intermediate monitor wells (IMWs) will be fitted with a transducer that will measure both water levels and specific conductivity at least once daily. Recovery and injection rates for all Class III wells will be recorded on a daily basis. Water

levels at observation wells will be monitored to show an inward gradient at the hydraulic control wells. A summary report will be provided to EPA. Model updates and adjustment will be completed, as needed. This will include updated hydraulic parameters, comparison with IMW results, and simulation(s) to demonstrate hydraulic control. If changes are needed to maintain control, Excelsior will propose them as part of this report. This may include changing the sequence of well installation or pumping rates. Excelsior will continue operations during the EPA review and comment period.

Excelsior will amend the UIC application to include submission of a detailed report as described.